Preanaesthetic medication: a survey of current usage

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Keywords: premedication; sedative; hypnotic; anticholinergic

Summary

A survey has been carried out amongst the UK based members of the Association of Anaesthetists of Great Britain and Ireland regarding their practice of premedication. Ninety-three per cent of respondents (reply rate 51.7%) used sedative-hypnotic premedication routinely in adults and 84% in children. However, anticholinergic premedication was used by only 36% in adults and 56% in children. Temazepam was the most frequently used sedative premedicant in adults and trimeprazine in children. Atropine and hyoscine were the most frequently used anticholinergic drugs. The main reasons for using sedative-hypnotic premedication were allaying anxiety and providing sedation. The main reasons for using anticholinergic drugs were drying of secretions and protection against vagal overactivity. This survey concludes that while sedative-hypnotic premedication continues to be used in the majority of patients with oral benzodiazepines the most frequently used drugs, the use of anticholinergic premedication continues to decline.

Introduction

The use of premedication in anaesthesia is historical. It was suggested that the administration of sedative and anticholinergic premedication should be routine during anaesthesia with chloroform and ether[1]. Although it is recognized that the preoperative visit by the anaesthetist produces a beneficial effect in terms of anxiolysis[2,3] the use of drugs appears to be common[4,5]. However, neither the frequency of the use of sedative and hypnotic premedicants, nor the reasons behind their use have been evaluated recently. Although the use of anticholinergic premedicants was shown to be declining about 10 years back[6], the attitudes to the use of anticholinergic premedication may have changed further. It was thus considered desirable to survey the current practice of anaesthetists in the usage of drugs for premedication.

Methods

A questionnaire was sent to all the members of the Association of Anaesthetists of Great Britain and Ireland resident within the United Kingdom. In this questionnaire, information was requested about the routine use of all sedative-hypnotic and anticholinergic premedication, the reasons behind the use of these drugs, the commonly used drugs and the routes of administration in both adult and paediatric patients. The anaesthetists were also asked if their practice regarding the use of drugs in premedication had changed in any way and, if so, how? The respondents were asked to comment on the situations where they would consider the use of anticholinergic premedication either mandatory, or contraindicated. Questions were also asked about the need and administration of premedication in patients undergoing day case surgery and the use of any other agents in premedication such as antacids and H_2 receptor antagonists.

Results

A total of 4088 questionnaires were sent out, and 2114 were returned after a single mailing, giving an overall response rate of 51.7%. One hundred and eighty-nine questionnaires were returned blank because of retirement etc, and thus replies from only 1925 anaesthetists were analysed, of whom 1326 (69%) were consultants, 237 (12.3%) were senior registrars, 215 (11.2%) were registrars and the remaining 147 (7.6%) were other staff grades.

Sedative-hypnotic drugs were used for premedication by 1799 (93%) anaesthetists in adults and 1595 (83%) in children. The three main reasons given (Table 1) were allaying anxiety, production of sedation and hypnosis and assisting in the smooth induction of anaesthesia, although not in the same order in adults and children. Smooth induction of anaesthesia was considered more important in children (74.9% against 56.0%). The other reasons for using these drugs included production of amnesia and analgesia, reduction of the dosage of anaesthetic agents and antiemetic effects.

Benzodiazepines were the most commonly used sedative-hypnotic drugs in adults, being used by 1334 (74%) anaesthetists. The most commonly used benzodiazepine was temazepam, followed by diazepam and lorazepam. The remaining 465 (26%) mostly used papaveretum, pethidine or morphine. Four hundred and eight respondents used a combination of drugs, principally papaveretum and hyoscine, or narcotics with droperidol, metoclopramide or other specific antiemetics. The most commonly used drug in children

Table 1. Reasons for using sedative-hypnotic drugs

	Adults	*Children*
n	1799	1595
Allaying anxiety	1594 (88.6%)	1218 (76.4%)
Sedation-hypnosis	1160 (64.5%)	1422 (89.1%)
Smooth induction of anaesthesia	1008 (56.0%)	1194 (74.9%)
Amnesia	420 (23.4%)	427 (26.7%)
Analgesia	573 (31.9%)	271 (17.0%)
Reducing the dosage of anaesthetic agents	623 (34.7%)	477 (29.9%)
Anti-emetic effect	501 (27.9%)	370 (23.2%)
Other	31 (1.8%)	35 (2.2%)

0141-0768/91/080481-03/$02.00/0

Table 2. Reasons for using anticholinergic drugs

	Adults	*Children*
n	693	1075
Drying of secretions	564 (81.4%)	834 (77.6%)
Prevention of bradycardia	495 (71.4%)	886 (82.4%)
Anti-emetic effect	264 (28.1%)	101 (9.4%)
Preventing laryngospasm	131 (18.9%)	246 (22.9%)
Raising gastric pH	28 (4.0%)	9 (0.8%)
Others	75 (10.8%)	35 (3.3%)

was trimeprazine, being used by 1070 (67%) anaesthetists followed by 197 (12%) using diazepam, 108 (7%) using papaveretum, 97 (6%) using temazepam and the remaining a combination of drugs. The most common combinations in children were papaveretum, trimeprazine or benzodiazepines with atropine, hyoscine or droperidol.

Seven hundred and seventy-seven respondents (40.4%) reported having changed their practice with regard to the administration of sedative-premedicant drugs in adults. Roughly half used such drugs less frequently and more respondents use oral premedicants. Four hundred and eighty-eight anaesthetists (25.4%) had changed their practice in children in the same way as in adults.

Anticholinergic drugs were being used routinely by 693 anaesthetists (36%) in adults and 1075 anaesthetists (56%) in children respectively. The main reasons given for their routine use are shown in Table 2, the two most common being the drying of secretions and prevention of bradycardia, followed by other reasons such as the prevention of laryngospasm and for antiemetic effect. The most frequent method of administration of the anticholinergic drugs, by those who used these routinely was intramuscular in the ward in 84% of adults and 74% of children. The remainder in each group administered anticholinergic drugs intravenously immediately before induction of anaesthesia or along with the induction agent. Whereas atropine was the predominantly used drug in children (88.9%), hyoscine was used with slightly greater frequency in adults (52.1%). A small proportion in each group prescribed glycopyrrolate as the anticholinergic drug (4.8% and 2.2% in adults and children respectively).

Table 3. Use of anticholinergic drugs when suxamethonium is used

	Adults	*Children*
Number using suxamethonium	1719	1710
Number using anticholinergic drug when suxamethonium is used	1124 (65.4%)	1364 (79.8%)
Method of using anticholinergic agents:		
As a premedicant	346 (30.8%)	622 (45.6%)
IV prior to induction of anaesthesia	137 (12.2%)	290 (21.3%)
Mixed with induction agent	65 (5.8%)	134 (9.8%)
Only with repeated administration of suxamethonium	568 (50.5%)	308 (22.6%)
Anticholinergic used:		
Atropine	952 (84.7%)	1292 (94.7%)
Glycopyrrolate	75 (6.7%)	38 (2.8%)
Other	97 (8.6%)	34 (2.4%)

Table 4. Use of premedicants in day case anaesthesia

	Adults	*Children*
Sedatives		
Often used	137 (7.1%)	292 (15.2%)
Sometimes used	848 (44.1%)	798 (41.5%)
Never used	903 (46.9%)	713 (37.0%)
No reply	37 (1.9%)	122 (6.3%)
Anticholinergic drugs		
Often used	95 (4.9%)	245 (12.7%)
Sometimes used	375 (19.5%)	591 (30.7%)
Never used	1415 (73.5%)	964 (50.1%)
No reply	40 (2.1%)	125 (6.5%)

The usage of suxamethonium and the administration of anticholinergic drugs with it is given in Table 3. Nearly 90% of respondents used suxamethonium in their anaesthetic practice. Of the people using suxamethonium 65.4% (1124) and 79.8% (1364) used an anticholinergic drug when this relaxant was used in adults and children respectively. About half of the anaesthetists used anticholinergic drugs only with repeated doses of suxamethonium in adults. This number is less in children where anticholinergic drugs were used more routinely when suxamethonium was used. Atropine was the most commonly used anticholinergic agent for this purpose.

The use of anticholinergic drugs was considered mandatory by 1170 (60.8%) and 1314 (68.3%) of anaesthetists in adults and children respectively in some situations. These include the usage of suxamethonium, prevention or treatment of bradycardia, surgery or instrumentation in the airway, and ophthalmic surgery, and to a smaller extent in patients on β-adrenergic receptor blocking drugs, those receiving vecuronium or atracurium, and those receiving inhalational induction of anaesthesia. Anticholinergic drugs were avoided by 1168 (60.6%) and 1051 (54.6%) anaesthetists mostly in the presence of pre-existing tachycardia, heart disease and pyrexia. In addition, a small number avoided these drugs in day case surgery patients, those with chest disease, glaucoma, and for avoiding unpleasant dryness.

Seven hundred and thirty-nine and 351 anaesthetists had changed their practice with regard to anticholinergic premedication in adults and children, respectively. This includes their less frequent use or omission from routine premedication. However, 55 and 34 anaesthetists used these drugs more often in premedication in adults and children, respectively.

Nearly half the respondents used no premedication in patients having anaesthesia for day case surgery (Table 4). However, the remaining half did use both sedatives and anticholinergic drugs either routinely or sometimes. This percentage is similar for both adults and children regarding sedative drugs. More respondents however used anticholinergic drugs in day case surgery in children.

A small number of respondents used other drugs routinely in premedication in adults. These included antacids, (151; 7.8%), H_2 receptor antagonists (194; 10.1%) and gastrokinetic agents (174; 9.0%). Six hundred and ninety-two (34.9%) used antiemetic drugs on a regular basis. The number using these drugs in children was negligible except for antiemetics where 178 (9.2%) respondents used such drugs.

Discussion

The results of the present survey show diverse trends in the use of sedative-hypnotic drugs on the one hand, and anticholinergic agents on the other. While the majority of anaesthetists continue to use the former, the use of anticholinergic drugs in premedication has declined considerably in recent years.

It is not unexpected that most anaesthetists use a sedative-hypnotic mainly for allaying anxiety since the majority of patients are anxious prior to anaesthesia and surgery[7,8]. Although the basic reasons for administration of sedative premedication have not changed much from the times when chloroform and ether were the main anaesthetic agents[9], the drugs that are used have certainly undergone change with less use of opiates. This was also shown in the survey carried out by Lunn and his colleagues[10]. Benzodiazepines have become popular since they are believed to come closest to the ideal anxiolytic with minimal side effects and good absorption after oral administration[4,11] and the most frequent use of temazepam must be due to its short half-life. The greater need for sedative-hypnotic drugs in children is not surprising since it is difficult to achieve anxiolysis in this group of patients by the preoperative visit, and most anaesthetists prefer children to be rather drowsy or asleep. The less frequent use of such drugs by some anaesthetists is probably related to concerns about delayed recovery after anaesthesia.

It is difficult to understand the rationale of so many anaesthetists using sedative-hypnotic drugs for anti-emetic effects. Most such drugs have hardly any anti-emetic effect and this would reflect using these drugs for wrong reasons.

The main change in premedication appears to be a reduction in the number of those using anticholinergic drugs routinely. Whereas the use of routine anticholinergic premedication had already fallen to 60-75%[6,10] 10-15 years back, the current survey shows a further decline to use by only 36% anaesthetists. There is a marked reduction in their routine use even in children. No need for anticholinergic premedication without any adverse effects on the course of anaesthesia has been shown by several studies[12-16]. It also avoids unnecessary discomfort and other side effects. It is, however, interesting to note from the present survey the greater use of anticholinergic premedication in both adults and children by a small number of anaesthetists. In adults it might be due to the greater use of newer, relatively clean, muscle relaxants such as atracurium and vecuronium, which have been reported to give rise to bradycardia in some patients whereas in children, it might be in addition to the use of isoflurane. The predominant choice of atropine in children could be based on a greater vagolytic action of this drug[17], since prevention of bradycardia was given as the most important reason for its use in this age group. Hyoscine, on the other hand, provides a better antisialogogue effect and some sedation, and is thus used more commonly in adults. The intramuscular route for administration of atropine is perhaps not justified as it is well absorbed after oral administration when given in adequate doses[18,19]. The use of glycopyrrolate is not very popular for routine premedication, probably due to a very prolonged and uncomfortable drying effect[20].

Premedication of patients coming for surgery on a day basis can present some problems, and there is some justification in avoiding premedication in this group of patients, as this may delay recovery. It has also been shown that the level of anxiety in this type of patient is low[21]. It is thus surprising in the present survey to find nearly 50% of day case patients receiving sedative premedication.

Acknowledgments: The list of respondents was provided by the Association of Anaesthetists of Great Britain & Ireland. Financial assistance was provided by A H Robins Co Ltd (now a subsidiary of Wyeth Laboratories) who also assisted with the computerization of the data and analysis.

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(Accepted 11 December 1990)